

Patent Claims

1. An artificial joint (1) with a joint plateau (3) and a joint overlay (4) which are connected to each other by means of a contact area (9) defined by a recess (6) and a projection (5) inserted therein, whereby the projection (5) has an overdimension (7) with respect to the recess (6) when it is at the body temperature of the patient and it can be inserted into the recess (6) by virtue of a temperature difference of the projection (5) or of the recess (6) in comparison to the body temperature of the patient, characterized in that the contact area (9) or overdimension (7) is configured differently, particularly as a function of the location, in such a way that, owing to the fixation forces that are exerted on the projection (5) at the body temperature of the patient, a state of stress is created in the joint overlay (4) and/or joint plateau (3) that improves the load-bearing capacity and/or durability of the artificial joint (1).
2. The artificial joint (1) according to Claim 1, characterized in that a specific state of stress can be adjusted in the joint overlay (4) by the fixation forces.
3. The artificial joint (1) according to Claims 1 or 2, characterized in that the contact area (9) is configured in such a way that the state of stress or the state of pressure can be adjusted in terms of its magnitude and/or direction.
4. The artificial joint (1) according to at least one of the preceding claims, characterized in that the magnitude of the state of stress or state of pressure brought to bear by the fixation forces is greater than the magnitude of the external force applied.
5. The artificial joint (1) according to at least one of the preceding claims, characterized in that the state of pressure or state of stress can be adjusted as a function of the main load plane of the artificial joint (1).

6. The artificial joint (1) according to at least one of the preceding claims, characterized in that the state of stress is prescribed by a pre-stressing that counters the external application of force.
7. The artificial joint (1) according to at least one of the preceding claims, characterized in that an intermediate element for adjusting the state of stress is provided in the region of the contact area.
8. The artificial joint (1) according to Claim 6, characterized in that the intermediate element can be affixed in different positions.
9. The artificial joint (1) according to Claim 6 or 7, characterized in that the intermediate element is configured as a bowl.
10. The artificial joint (1) according to at least one of the preceding claims, characterized in that the recess (6) has an undercut (10) that affixes the projection (5) positively, said undercut being determined by the contour or topography of the joint overlay (4), especially by the thickness of the material.
11. The artificial joint (1) according to at least one of the preceding claims, characterized in that the joint plateau (3) and the joint overlay (4) have a different coefficient of thermal expansion.
12. The artificial joint (1) according to at least one of the preceding claims, characterized in that the joint plateau (3) and the joint overlay (4) are connected to each other in a way that their contours are flush with each other.
13. The artificial joint (1) according to at least one of the preceding claims, characterized in that a contact area (9) between the projection (5) and the recess (6) is imparted with surface characteristics that improve the force transmission such as, for example, especially roughness or structuring.

14. The artificial joint (1) according to at least one of the preceding claims, characterized in that a projection (5) made of polyethylene is associated with the joint overlay (4) and a recess (6) is associated with the joint plateau (3) made of metal.
15. The artificial joint (1) according to at least one of the preceding claims, characterized in that the projection (5) and the recess (6) lie against each other on an encircling and continuous contact area (9).
16. A method to connect a joint plateau to a joint overlay of an artificial joint according to Claim 1, in which the joint plateau is connected to the joint overlay by means of a contact area formed by a recess and a projection inserted therein, whereby first of all, a different heat expansion and/or cold shrinkage between the projection and the recess is achieved by virtue of a temperature difference in comparison to the body temperature of the patient, and subsequently the projection is inserted into the recess, characterized in that the contact area or overdimension is configured differently, particularly as a function of the location, in such a way that, owing to the fixation forces that are exerted on the projection at the body temperature of the patient, a state of stress is created in the joint overlay and/or joint plateau that improves the load-bearing capacity and/or durability.